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NAVAL POSTGRADUATE SCHOOL

MONTEREY, CALIFORNIA

MBA PROFESSIONAL REPORT

AN ANALYSIS OF BID EVALUATION PROCEDURES OF CONTEMPORARY MODELS FOR PROCUREMENT IN PAKISTAN

December 2016

**By: Muhammad Naeem Khan
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**Advisors: Cory Yoder
Robert Looney**

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**AN ANALYSIS OF BID EVALUATION PROCEDURES OF
CONTEMPORARY MODELS FOR PROCUREMENT IN PAKISTAN**

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Submitted in partial fulfillment of the requirements for the degree of

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from the

**NAVAL POSTGRADUATE SCHOOL
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AN ANALYSIS OF BID EVALUATION PROCEDURES OF CONTEMPORARY MODELS FOR PROCUREMENT IN PAKISTAN

ABSTRACT

The Pakistan defense procurement is done in accordance with the Pakistan Public Procurement Authority (PPRA) rules. The PPRA rules provide limited scope/detail for the bid evaluation process. The public procurement procedure of Pakistan pertaining to bid evaluation is not defined in detail and has been wholly and solely left at the discretion of the procuring agency. The loophole in the bid evaluation of the public procurement has led to many problems and fraudulent activities. This research project reviews the existing bid evaluation procedures of the United States, United Kingdom, Turkey, and Australia. This research project analyzed the bid evaluation procedure in the PPRA rules and highlighted the relevant deficiencies in the procurement procedures. Then the four contemporary procurement models of the United States, United Kingdom, Turkey, and Australia are analyzed with particular focus on the bid evaluation procedures.

The comparative analysis is carried out for the four existing procurement models of various countries and based on this comparative analysis a five components of bid evaluation are recommended for incorporation in the PPRA rules to serve as a guide for the Pakistan defense contracting.

We recommend that a comparative analysis of all the relevant/best practices of the bid evaluation Processes for public procurement in Turkey, the United States (U.S.), the United Kingdom (UK), and Australia be undertaken and be used to develop a guide for Pakistan defense contracting.

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LIST OF ACRONYMS AND ABBREVIATIONS

AoA	Analysis of Alternatives
CPAF	Cost Plus Award Fee
CPFF	Cost Plus Fixed Fee
CPIF	Cost Plus Incentive Fee
CPR	Commonwealth Procurement Rules
CPRG	Contract Price Reference Guide
DAU	Defense Acquisition University
DAWIA	Defense Acquisition Workforce Improvement Act
DOD	Department of Defense
EMD	Engineering and Manufacturing Development
EPA	Economic Price Adjustment
FAR	Federal Acquisition Regulations
FFP	Firm Fixed Price
FPI	Fixed Price Incentive
GDP	Gross Domestic Product
IFB	Invitation for Bid
IOT&E	Initial Operation Test and Evaluation
LNG	Liquefied Natural Gas
LPTA	Lowest Price Technically Accepted
LRIP	Low Rate Initial Production
MSA	Materiel Solution Analysis
MTBF	Mean Time Between Failure
OS	Operations and Support
PD	Production and Development
PPRA	Public Procurement Regulatory Authority
R&D	Research and Development
RFP	Request for Proposal
SSA	Source Selection Authority
TMRR	Technology Maturation and Risk Reduction
UNICITRAL	United Nations Commission on International Trade Law

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I. INTRODUCTION

A. BACKGROUND

Pakistan came into existence in 1947 after gaining independence from the British; India also became a separate country in the process. Pakistan is located in South Asia, sharing its borders with four other countries, including India. Pakistan has fought three wars with India and is in dispute with India on many issues, including the core issue of Kashmir. Both the countries are spending heavily on defense. India, being a large country, is spending more as compared to Pakistan. As Pakistan cannot change its borders or neighbors and it has to live in this threat atmosphere because of its location in the hostile environment, therefore Pakistan has to maintain minimum credible deterrence and has to maintain a military power for its defense and sovereignty. Pakistan cannot match India in the numerical terms as far as its military equipment and weapons systems are concerned; therefore, Pakistan must concentrate on quality and efficiency in its military spending.

A large portion of the defense budget comprises operational and maintenance expenditures, as well as new procurements that usually require complicated acquisition procedures. These acquisitions/procurements are sustained by public or taxpayers' money, as per the existing procurement rules and regulations of the country, and are audited by several public and private audit institutions. In order to obtain best value and efficient use of the public money, governments do legislation for the acquisition laws and regulations for public procurement.

The military expenditure of Pakistan is around 3.6% of the gross domestic product (GDP) (World Bank, 2015). The Pakistan defense procurement is done in accordance with the Pakistan Public Procurement Authority (PPRA) rules. The PPRA rules provide limited scope/detail for the bid evaluation process. There is no standard procedure for the bid evaluation and it is left at the discretion of the procuring/user agencies. According to PPRA rules (PPRA Rules, 2004, rule 29): "Procuring agencies

shall formulate an appropriate evaluation criterion listing all the relevant information against which a bid is to be evaluated.”

PPRA Rules are the manifestation of the United Nations Commission on International Trade and Law (UNCITRAL) based on the recommendations of the World Bank. The PPRA Rules do not provide a standard procedure for the evaluation of the bids and have left bid evaluation to the discretion of the users or procuring agencies to make awards as it suits them. This has led to non-standard evaluation of the bids, giving rise to loopholes for fraudulent activities and protests by the unsuccessful bidders.

B. PURPOSE OF RESEARCH

The purpose of this research project is to analyze the bid evaluation processes/procedures for public procurement of United States, United Kingdom, Australia, and Turkey and to develop a guideline for Pakistan public procurement.

C. RESEARCH QUESTIONS

This research project emphasis is on the formation and incorporation of bid evaluation procedures, which should be practical/feasible for defense procurement of Pakistan, and allow the process to be transparent and effective. In this regard, the United States, United Kingdom, Australian and Turkish procurement models with special emphasis on bid evaluation will be analyzed to respond to the ensuing questions:

- a.* What policy guidelines should be incorporated in PPRA rules 2004 bid evaluation procedures for defense procurement in Pakistan?
- b.* What are the best practices in U.S., UK, Australia, and Turkey procurement models that will be viable for PPRA rules and Pakistan public procurement?

D. IMPORTANCE OF RESEARCH

The importance of this research project is that the defense services and other federal entities carry out their procurement as per the PPRA rules 2004. These rules are deficient as far as bid evaluation is concerned, however, and the lack of detail about the bid evaluation has thereby increased chances for fraudulent activities and protests by the unsuccessful bidders. In order to have best value for the public money and to bring

transparency and efficiency in the public procurement process, a proper and standard bid evaluation procedure in the PPRA rules 2004 is of paramount importance to Pakistan. This research project will evaluate the bid evaluation procedures/criteria of the existing procurement models of the United States, the United Kingdom, Australia, and Turkey, and recommend an efficient and viable guideline for PPRA rules 2004.

E. BENEFITS AND LIMITATIONS

The research project lays emphasis on evaluating the bid evaluation procedures of contemporary procurement models and recommending a viable bid evaluation procedure for public procurement of Pakistan. This research project will find out suitable bid evaluation procedures for incorporation in the PPRA rules by the government of Pakistan in order to bring efficiency, transparency and proper utilization of the public money.

This research project takes into account literature materials from open sources only, which are limited for qualitative analysis. So, the research project results may be slightly limited in scope. However, these limitations have negligible effect on the research findings. The study of this research project can be applied to all public procurement in Pakistan.

F. METHODOLOGY

This research study will give an overview of the need for procurement reforms in Pakistan and an introduction to the Public Procurement Regulatory Authority (PPRA) rules. In this research project, the selection and bid evaluation criteria in the corporate sector will be studied along with the United States, United Kingdom, Australia, and Turkey procurement models with special emphasis on bid evaluation will be analyzed/assessed and a comparative analysis will be made and all the relevant/best practices of the bid evaluation will be recommended for incorporation in the public procurement procedure of Pakistan to make it a viable procedure and rules/regulations in the field of procurement.

G. ORGANIZATION OF REPORT

This research project contains five chapters. Chapter I is the introduction to the research project. Chapter II comprises of the literature review containing background of the PPRA rules, bid evaluation process of corporate sector and an overview of the procurement models of United States, United Kingdom, Australia and Turkey with special emphasis on bid evaluation criteria. Chapter III talks about the methodology of a comparative analysis of the various mentioned models in terms of bid evaluation procedures/criteria. Chapter IV discusses the analysis of the bid evaluation process and gives recommendations in this regard. Chapter V consists of summary, conclusions and areas for further research.

H. SUMMARY

This introduction chapter gives a brief overview on the background of this research and deficiencies in the PPRA rules pertaining to bid evaluation. It also encompasses the purpose, importance and benefits/limitations of this research project. It also provides an overview on the methodology to be carried out and the organization of report.

The aim of this research project is to recommend suitable guidelines for the bid evaluation process in order to bring efficiency and transparency in the defense procurement system in particular and overall public procurement of Pakistan in general.

II. LITERATURE REVIEW

A. INTRODUCTION

This chapter is related to the literature review and describes the different bidding processes and bidding evaluation criteria in the corporate/private sectors. It further explains the importance and need for procurement reforms in Pakistan. It also describes the various aspects of the Pakistan Public Procurement Regulatory Authority (PPRA) Rules. This chapter also covers the various procurement models of the United States, United Kingdom, Australia, and Turkey with special emphasis on bid evaluation procedures.

B. CORPORATE SECTOR'S PROCESSES AND EVALUATION OF BIDS

In the corporate sector, the terms bid, offer, quotation, and bidder often are used interchangeably. **Bid** can be defined as to put forward or offer to pay a certain amount of money for some product/item/equipment being sold, or to offer to do some service for a particular price. The process that involves all the above is known as bidding (Crouch & Feasey, 2002; pp. 1–2).

There are numerous techniques for obtaining and selecting bids. Each process must consider number of aspects, including the type of items being purchased, the desired relationship with suppliers, and the level of the supplier's interest in the purchasing company (Crouch & Feasey, 2002; p. 7):

The process of obtaining and selecting bids is:

1. Determining the criteria for bid evaluation
2. Choosing suppliers for invitation to bid
3. Arranging the invitation for suppliers
4. Sending the invitation to suppliers
5. Obtaining & Evaluating the bids
6. Negotiating the bids (if possible)
7. Accepting the bid and awarding contract

8. De-brief unsuccessful bidders

1. Bidding Processes

The type of formality used in the bidding process mostly depends on the type/nature of requirements and rules/regulations of the procurement company.

There are three basic options in the bidding process (Crouch & Feasey, 2002; pp. 26–28).

a. Open Bidding

In open bidding, any supplier can bid provided he meets the minimum criteria of the bidding procedure. It involves advertising the user agency requirements broadly in order to give opportunity to all potential suppliers to bid fulfilling the criteria. The interested suppliers are sent the invitation for bids. On receipt of the suppliers' bids are evaluated on receipt. This type of bidding process generates maximum competition.

Open Bidding is best suitable if:

- The user agency requirements are rational with complete specification.
- There are numerous bidders with open competition and no one has any substantial lead over the other bidder.
- The evaluation processing cost of increased number of suppliers is less than the anticipated low price in case of open bidding.
- Price is the most important evaluation bidding criteria.

The process of open bidding must not be carried out for specific or specialized requirements or proprietary cases.

b. Restricted Bidding

The restricted bidding involves only those suppliers exclusively invited to bid. There are two approaches for making decision in which suppliers be invited for restricted bidding:

- If the procuring agency is well aware of the market, then simply pick the suppliers that are most suitable to the user's demand.

- If the procuring agency does not have enough information of supply market, then conduct pre-qualifying process for suppliers. Then from among the pre-qualified suppliers, the most appropriate supplier can be selected.

If the procuring agency's requirements are persistent and frequent over a period of time, then a list of approved suppliers can be obtained through a pre-qualification process normally refer to as a "restricted list." Suppliers can then be selected from this restricted list.

If a supplier assessment is made, this can provide a source for maintaining a list of approved suppliers. A list of approved or pre-qualified suppliers can also be maintained by advertising for suppliers to show their willingness, as is done in expressions of interest under open bidding. The pre-qualification criteria should be based on the type of requirement and should be disclosed to suppliers invited to pre-qualify.

The restricted bidding is suitable if:

- The procuring agency's requirement is specialized, and it is known that for such a task suppliers exist in the market.
- The requisite lead-time and cost of procurement does not validate for an open bidding.

c. Two-Stage Bidding

In open and restricted bidding, there is a complete specification when inviting for bidding. It contains enough technical details for the bidders to offer their bids as per the user's demand. However, a situation arises when it is not possible to provide complete specifications in the invitation for bidding. The situation may be when:

- It is not possible for the procuring agency to provide specification without prior consultation/negotiations with the suppliers because of the complicated technical aspect of the demand.
- The user demand is such that is linked to fast and rapid technological changes (e.g., computers and electronics equipment).

If the above situation arises then a two stage bidding process is appropriate to be carried out. It gives an opportunity to the procuring agency to get advantage from the

supplier's skill/knowledge in order to make the specification more effective and relevant prior to arriving at an appropriate decision.

In the two-stage bidding, in the first stage the bidders are invited to give only technical offers without prices. At this stage, the bidders that does not meet the procuring agency demand as far as technical aspects are concerned, are excluded.

In the second stage, the remaining bidders are requested for commercial bids (bids with prices) along with technical clarifications if required. As the technical aspects of the bidders in the first stage are acceptable, in this stage decision for evaluation is based on the lowest price.

2. Evaluating Supplier's Bids

According to Crouch and Feasey, there are numerous criteria/methods to evaluate the supplier's bids /offers:

- lowest price,
- lowest total cost of ownership,
- weighted scoring,
- value judgment (2002; pp. 33).

a. Lowest Price

The lowest price means the price of bid besides being lowest also meets the minimum criteria/requirements of the procuring agency because the features like quality and delivery time cannot be ruled out. The lowest price is one of the simple criteria for evaluating the bids as it is reliant on the minimum requirement, after which a straightforward price comparison can be carried out. It is best suited when the target is to minimize the product/service price and when operating/maintenance cost of the product after purchase are insignificant/negligible. The lowest price is also best in cases when purchasing standard commercial products having definite/recognized specifications.

b. Lowest Total Cost of Ownership

In the Total Cost of Ownership, suppliers' bids besides meeting the minimum criteria are also solely evaluated from financial point of view. The components on which the total cost of ownership depends are the costs that incur from the start of the purchase of the product until their disposal after completion of its useful life. These components are:

(1) Purchase Cost:

This includes:

- The price of the item.
- The cost of salary and time spent by the purchaser of the procuring agency in the purchase of the product.
- Documentation and paper work costs
- Cost of delivery
- Installation/commissioning costs.

(2) Operating Costs:

These are the costs that are incurred throughout the normal usage/life of the equipment. These include:

- The cost of the operator, operating the equipment.
- The cost of training of the operators.
- The cost of electricity, water, gas etc., being consumed by the equipment.
- Cost of the consumables like engine oil, lubricating oil, grease etc.

(3) Preventive Maintenance Costs:

Most of the equipment requires regular preventative maintenance for its smooth functioning and efficient operations, but this preventative maintenance bears costs, it usually involves the following:

- Purchasing and inventory holding costs of the spare parts that is to be replaced frequently/periodically.

- The salary and training costs of the people responsible for the maintenance of the equipment.
- The cost of tools required for the maintenance activities.
- The cost of time when the equipment is not in operation i.e., out of service for maintenance purpose.
- The periodic or onetime cost if maintenance or servicing of the equipment is out sourced.

(4) Repair Costs

These are often complicated and hard to calculate; however, estimates can be made from the data of Mean time between failures (MTBF) provided by suppliers in their bids or repair history of such equipment from suppliers operating in similar environment/conditions.

(5) Cost of Disposal

This cost occurs when equipment completes its useful operational life and must be disposed of. The costs involved in disposal include clearing the area, recycling, and costs incurred if the equipment contains any toxic or hazardous chemicals that can be a threat to environment.

This cost can be negative if the equipment is sold as a scrap or can be re-used in some other form.

(6) Capital/Other Costs

This includes the installments or interest paid on the loans acquired for the procurement of the equipment, and the cost of insurance to cover the equipment for any loss or damage, or liability.

(7) Other Consideration

This includes the productivity of the equipment that is to find that if the equipment is giving high output for the given input (i.e., the lower cost per unit of production). If this is not the case, then the cost per unit of production will be high. This must be taking into consideration when evaluating total cost of ownership.

The above summary suggests that the purchase price is only a comparatively small portion in the total cost of ownership.

c. Weighted Scoring

In this method, the suppliers or their bids/offers are scored with respect to a range of criteria that has been weighted in order to show their comparative importance. The supplier having the overall highest score will be awarded the contract. In this approach, suppliers are evaluated and assessed on many different criteria, of which price is just one criterion. This method is used to rate the suppliers for their performance.

The following are some of the steps involved in weighted scoring method:

- Identifying main categories for supplier's bid.
- Identifying sub-categories of each main category.
- Allotting weights to each main category and assigning weights to sub-categories as per the importance.
- Developing a range of score for applying to supplier's bid against each sub-category as per supplier performance.
- Score the supplier's bid with respect to each subcategory by multiplying the score with each sub-category weights to get the total weighted score.
- On summation, the overall weighted score of the supplier is obtained.
- The supplier with the highest overall weighted score is recommended for award of contract.

In order to explain the above steps, for example, Suppliers A, B & C have submitted their bids (Pacific Systems Corporation Case). The main categories for suppliers' bid evaluations are cost competitiveness, financial health, delivery performance, quality, technical performance and geographical conditions. In the following table, the various categories and sub-categories for the bid evaluation are given with corresponding ranges and scores for supplier bid evaluation (Table 1).

Table 1. Score /Range of the Sub-Categories.
Adapted from Crouch and Feasey (2002).

Categories	Sub-Categories	Score/Range of the Sub-Categories					
Cost Competitive-ness	Quoted Price	Range	\$120-129	\$130-139	\$140-149	\$150-159	\$160-169
		Score	5	4	3	2	1
	Tool Costing	Range	Less \$3 Mill	3- 4M	4- 5M	6 - 7M	8M & up
		Score	5	4	3	2	1
	Misc (Tpt,Ins, Cus, Inv) Cost per unit	Range	\$10 - 19	\$20 - 29	\$30 – 39	\$ 40 – 49	\$ 50 - 59
		Score	5	4	3	2	1
Financial Health	Market Share	Range	40 – 49%	30 – 39%	20 – 29%	10 – 19%	1 – 9%
		Score	5	4	3	2	1
	Turnover Ratios	Range	9 – 10	7 –8	5 – 6	3 – 4	1–2
		Score	5	4	3	2	1
	Profitability Ratios	Range	High	Medium	Sat	Low	Very low
		Score	5	4	3	2	1
Delivery Performance	Delivery Lead-time	Range	1 – 2wks	3 – 4wks	5 – 6wks	7 – 8wks	9 – 10wks
		Score	5	4	3	2	1
	On-Time Record	Range	99 – 100%	97 – 98%	95 – 96%	93 – 94%	91 – 92%
		Score	5	4	3	2	1
	Capacity	Range	100%	95 – 99%	90 – 94%	85 – 89%	80 – 84%
		Score	5	4	3	2	1
Quality	Process Control Systems	Range	Excellent	Very good	Good	Sat	Not Sat
		Score	5	4	3	2	1
	Total Quality Commitment	Range	Excellent	Very good	Good	Sat	Not Sat
		Score	5	4	3	2	1
	PPM defect performance	Range	1000 – 5000PPM	6000 – 9000PPM	10000 – 15000PPM	16000 – 20000PPM	Above 20000PPM
		Score	5	4	3	2	1
Technical Performance	Ramp-up Time	Range	1 – 4 Months	5 - 9 Months	10 - 14 Months	15 - 19 Months	20 - 24 Months
		Score	5	4	3	2	1
	Innovation	Range	High	Above Avg	Medium	Sat	Low
		Score	5	4	3	2	1
	R&D	Range	High	Above Avg	Medium	Sat	Low
		Score	5	4	3	2	1
Geographical Conditions	Location	Range	Within 10 miles	Within State	Within U.S.A	Within Continent	Outside Continent
		Score	5	4	3	2	1
	Political Situation	Range	Very Stable	Stable	Relatively Stable	Unstable	Very Unstable
		Score	5	4	3	2	1

Supplier “A” performance as per their bid submitted is shown in Table 2, keeping in view the various categories/sub- categories and ranges and scores from Table 1.

Table 2. Performance of Supplier “A.”
Adapted from Pacific Systems Corporation Case

Categories	Sub-Categories	Total Weight	Sub- Cat Weight	Score (1-5)	Weighted Score (Sub-Cat)	Total Weight Score
Cost Competitiveness	Quoted Price	15	7	5	35	63
	Tool Costing		4	4	16	
	Miscellaneous Cost		4	3	12	
Financial Health	Market Share	10	2	4	8	32
	Turn over Ratios		4	4	16	
	Profitability Ratios		4	2	8	
Delivery Performance	Delivery Lead-time	15	5	2	10	45
	On-Time Record		5	3	15	
	Capacity		5	4	20	
Quality Systems	Process Control Systems	20	6	4	24	73
	Total Quality Commitment		7	4	28	
	PPM defect performance		7	3	21	
Technical Performance	Ram-up Time	15	5	5	25	70
	Innovation		5	4	20	
	R&D		5	5	25	
Geographical Conditions	Location	10	5	1	10	20
	Political Situation		5	2	10	
Maximum Possible Score		85	85 x 5 = 425			303

Supplier “B” performance as per their bid submitted is shown in Table 3, keeping in view the various categories/sub-categories and ranges and scores from Table 1.

Table 3. Performance of Supplier “B.”
Adapted from Pacific Systems Corporation Case

Categories	Sub-Categories	Total Weight	Sub- Cat Weight	Score (1-5)	Weighted Score (Sub-Cat)	Total Weight Score
Cost Competitiveness	Quoted Price	15	7	3	21	57
	Tool Costing		4	4	16	
	Miscellaneous Cost		4	5	20	
Financial Health	Market Share	10	2	1	2	38
	Turn over Ratios		4	4	16	
	Profitability Ratios		4	5	20	
Delivery Performance	Delivery Lead-time	15	5	4	20	55
	On-Time Record		5	4	20	
	Capacity		5	3	15	
Quality Systems	Process Control Systems	20	6	4	24	73
	Total Quality Commitment		7	4	28	
	PPM defect performance		7	3	21	
Technical Performance	Ram-up Time	15	5	4	20	70
	Innovation		5	5	25	
	R&D		5	5	25	
Geographical Conditions	Location	10	5	3	15	40
	Political Situation		5	5	25	
Maximum Possible Score		85	85 x 5 = 425			333

Supplier “C” performance as per their bid submitted is given in Figure 4, keeping in view the various categories/sub-categories and ranges & scores from Table 1.

Table 4. Performance of Supplier “C.”
Adapted from Pacific Systems Corporation Case

Categories	Sub-Categories	Total Weight	Sub- Cat Weight	Score (1-5)	Weighted Score (Sub-Cat)	Total Weight Score
Cost Competitiveness	Quoted Price	15	7	3	21	53
	Tool Costing		4	4	16	
	Miscellaneous Cost		4	4	16	
Financial Health	Market Share	10	2	4	8	44
	Turn over Ratios		4	5	20	
	Profitability Ratios		4	4	16	
Delivery Performance	Delivery Lead-time	15	5	5	25	70
	On-Time Record		5	5	25	
	Capacity		5	4	20	
Quality Systems	Process Control Systems	20	6	5	30	86
	Total Quality Commitment		7	4	28	
	PPM defect performance		7	4	28	
Technical Performance	Ram-up Time	15	5	5	25	70
	Innovation		5	4	20	
	R&D		5	5	25	
Geographical Conditions	Location	10	5	5	25	50
	Political Situation		5	5	25	
Maximum Possible Score		85	85 x 5 = 425			373

A summary of the performances of each supplier as per their bids and the maximum possible score are given in Table 5. This comparison can be used to pick the most viable and best supplier for further recommendation.

Table 5. Summary of Performance of All Three Suppliers.
Adapted from Pacific Systems Corporation Case

Maximum Possible Score	Supplier “A”	Supplier “B”	Supplier “C”
425	303	333	373

As per the evaluation criteria, **Supplier “C”** has the highest score among the three suppliers and is therefore **recommended** for award of contract.

In this method, the supplier’s bids are evaluated against non-costs aspects. The weighted scoring criteria can also be employed to the value judgment but only the non-costs aspects of the bids are evaluated. When the weighted scoring of non-costs aspects are completed then the overall weighted scores are compared with the corresponding costs (cost can be purchase price or total cost of ownership) and a judgment is made as to which supplier’s bid/offer provides the best value/combination of performance.

Thus, a supplier that does not offer the lowest price but offer overall best performance than the lowest bidder, may be recommended for contract through this method. This method is subjective type, therefore should be used cautiously.

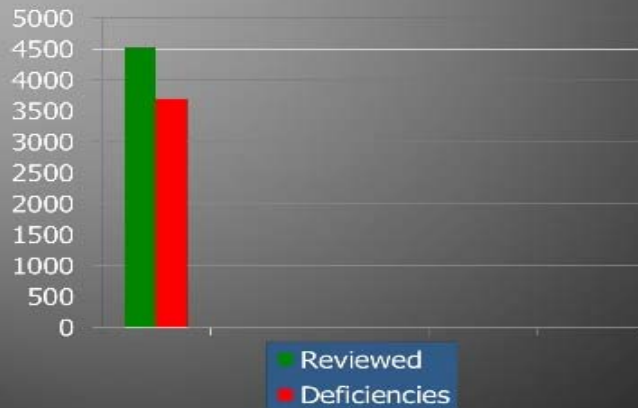
C. PAKISTAN PUBLIC PROCUREMENT

In order to have good value for the public money and a developing country with a struggling economy, the high authorities felt the need for reforms in Pakistan to get rid of outdated rules and regulations, and to streamline procurement in defense services, defense production division, and other public institutions. The World Bank auditors in 1997–98, after reviewing the procurements/contracts in Pakistan, found deficiencies in 3700 contracts out of 4524 contracts (Khan, 2014). See Figure 1.

Need for Procurement Reforms in Pakistan

World Bank's Study of 1997-98

In 1997 – 98, the World Bank auditors reviewed **4524** contracts and found deficiencies in **3700** contracts.



PPRA PowerPoint presentation given to the public procurement representatives of South Asia countries at Islamabad, Pakistan on March 26, 2014 by Alam Zeb Khan.

Figure 1. World Bank Review of Pakistan Procurement and Contracts.

Source: Khan (2014).

Therefore, the World Bank recommendations were:

- To enact a public procurement law as per the UNCITRAL procurement model.
- To create an independent regulatory agency consisting of trained and professional staff.
- To confine the regulatory agency to preparing policies, documentation and rules/regulations.
- To withhold the authority for the award of contracts from the regulatory agency (Khan, 2014).

1. Need for Procurement Reforms

The following are some of the reasons for procurement reforms in Pakistan:

- The rules/manuals were largely obsolete and not compatible with present environment.
- These rules were not as per the International Standards

- These rules/manuals were mostly containing procedures about construction and supply bidding.
- Services procurements were completely ignored from these rules/manuals.
- These rules/manuals were such that could not prevent corruption or fraudulent practices in procurements.
- There was no system to revise and update these rules/manuals, in case of any requirement by the user agency.
- Major errors/faults besides being outdated resulted in various protests, complaint and litigation cases.

2. Public Procurement Regulatory Authority (PPRA)

In view of the above recommendations, a Public Procurement Regulatory Authority (PPRA) was established, laying down the foundation for a public procurement legal framework of Pakistan that:

- The PPRA rules will be applicable to all the federal government procurement entities.
- The principle method of procurement will be open competitive bidding.
- The procurement of the value of U.S.\$ 1000 and above is to be advertised (PPRA rules, 2004).

According to the PPRA rules, fairness, transparency, efficiency, achieving value for money, and being economical are the basic factors of procurement (PPRA rules, 2004). See Figure 2.



Figure 2. PPRA Performance 2010–2013.
Source: PPRA presentation by Alam Zeb Khan (2014).

D. PPRA RULES

The PPRA was established through an ordinance in 2002 and its rules promulgated in 2004 and therefore became the Pakistan Procurement Regulatory Authority Rules 2004. The main aim of the PPRA to give recommendations to the government as far as the public procurement is concerned. Some of the relevant sections of these rules are described below (PPRA, 2004, rule 8-38).

1. Procurement Planning

PPRA rules 8 to 11 provide an overview as to how planning of various government entities should be carried out. The rules impress upon the procuring agencies that the requirements must be realistic and should be widely advertised well in advance, and the advertising means must include the PPRA authority website. The rules also state the specification that the user's agency should be generic in nature and that brands/models etc. should not be used, in order to avoid favoring specific suppliers/companies.

2. Pre-qualification of Suppliers

PPRA rule 15 tells about the process of pre-qualification of suppliers by the procuring agency, that is to make sure that technically and financially competent suppliers/companies having sufficient experience be only invited to submit their bids in order to perform the task satisfactorily. The procuring agency while performing pre-qualification should take into account the past performance, required experience, financial standing, capacity/capability in terms of man/machinery, management capabilities and any other related aspect consider necessary by the procuring agency.

3. Opening of Bids

PPRA rule 28 explains about the opening of bids. It illustrates that the bids should be opened at the specified place, date and time and that should be opened as a minimum 30 minutes after the cut-off time (PPRA rules, 2004). It further says that the bids should be opened in a meeting where the bidders or the legal representatives of the bidders are ready (PPRA rules, 2004).

4. Evaluation Criteria

PPRA rule 29 says that the procuring agency should establish the evaluation criteria for the bid evaluation and that such criteria must be mentioned in the bidding documents. If for any reason the procuring agency fail to provide the evaluation criteria in the bidding documents such procurement will be considered as “mis-procurement.”

Furthermore, rule 30 explains that if bids are received in different currencies then for comparison the prices should be converted into a single currency. Rule 35 describes that the evaluation result providing justification for acceptance or rejection of the bids be published at least 10 days before awarding the contract (PPRA rules, 2004).

5. Open Competitive Bidding Procedure

According to PPRA rule 36, the following types of procedures for the open competitive bidding are appropriate:

- Single Stage-One Envelope procedure (Financial and Technical)
Most of the procurement are carried out through this procedure.

- Single Stage-Two Envelopes procedure (First Technical and then Financial) In the cases where bids are evaluated on the basis of both Technical and Financial aspects.
- Two Stage-Two Envelopes procedure (Stage I Technical and Stage II Financial) Cases where the requirement is complicated and that bids can differ in the technical aspects (PPRA rules, 2004).

6. Acceptance of Bids

The PPRA rule 38 describes that if there are no other rules/regulations in conflict, then the lower evaluated bid should be accepted. Further rule 39 says that the procuring agency should provide a performance guarantee from the selected bidder not more than 10% of the contract amount.

E. COMPONENTS FOR BID EVALUATION

The main components for the bid evaluation, which will be analyzed in the various contemporary acquisition and procurement models and through comparative analysis, will recommend these for incorporation and implementation in the PPRA rules. These main components are as described in the following sections.

1. Market Intelligence

Market intelligence refer to the market analysis required to access the ability and information from the supply market to fulfil the user's procurement requirements and to specify a particular market segment in order to better understand the risk and opportunities available in the supply market (Handfield, 2006, p. 2).

The market intelligence is one of the best ways to reduce costs/risks as prices can vary enormously within the same market and about 70% price variation can be found within the same product. According to Crouch and Feasey, the market intelligence helps the procuring agency in:

- Identifying the particular market segments that can provide reduce risks and best opportunity for a specific product.
- Identifying new items and technologies in order to fulfil user's demand.

- Understanding various constraints and conditions pertaining to the purchase of a particular product (2002, p. 3).

2. Suitable Contract

A contract can be defined as a lawful agreement among two or more persons/entities for the purpose of forming legal association or relationship (Burton, 2007). The selection of a suitable contract for product delivery or services is of paramount importance, while selecting the type of contract it should be kept in mind by the user agency as what the user wants to obtain from the contract and what to avoid, further what are the available options with the users if things go wrong. The clauses in the contract should be carefully incorporated to avoid any risk or harmful impact on the user agency.

3. Evaluation Criteria

The bid evaluation is the process of examining the offers submitted by the suppliers for the award of a suitable contract. The bid evaluation is important in order to come to a conclusion that the procurement or contract with the supplier will be viable for the procuring agency or otherwise. The evaluation of bids is mostly done by the procuring agency either through lowest price, total cost of ownership, weighted scoring or value judgement (Crouch & Feasey, 2002; p. 33). These criteria have been described in detail in this chapter above.

The method of best value continuum is also used for negotiating with the bidders to obtain the best value for the user agency (FAR 15.101). In the best value continuum tradeoff is used to either accept the low price or high price technically viable, whichever is in the best interest of the purchaser or the government.

4. Competition

Enhancing competition is one of the vital elements of the procurement process; it helps in provision of good quality of products and services. It also helps in encouraging research/innovation. Through enhanced competition good quality of items and services can be obtain at economically low cost. It is through competition that the user can get

quality, performance and reliability in the products and services intended to procure. Procurement in a competitive environment can help obtain the best value of the taxpayer money (Commonwealth Procurement Rule 5.1, 2014; p. 16).

5. Cost/Price Analysis

The price analysis is the evaluation of the bidder's price with respect to the prices offered by the other bidders for the similar product or services. The price analysis is mostly carried out for the commercially available products (FAR 15.402).

The cost analysis is the evaluation of a bid when it is not possible to carry out a price analysis, because of the cost involved of other factors than the price. The cost analysis is carried out to compare the price and non-price factors to make a decision that the contract will be viable in terms of economy and performance. The cost analysis is mostly carried out for technical and non-commercial products (FAR 15.404-1(c)).

In the public procurement process the cost price analysis also refers to the analysis of past procurement in terms of prices, market research, and support services provided by the bidders or suppliers. The cost/price analysis of the bids helps in the initial evaluation and short listing of suppliers and thus provides convenience in decision making.

F. TURKISH PROCUREMENT SYSTEM

Turkish procurement system is governed by the Public Procurement Authority. This institution does its job according to a special law, which is called as Public Procurement Law. The commitment of the law is to create the rules and regulations to be used in all procurement processes. This law is binding for procurements that are processed by public establishments and organizations that are under public law, and/or under public control. Figure 3, which is adopted from United Nations Development Program website, shows the basics of Turkish Public Procurement System.



Figure 3. Basics of Turkish Public Procurement System.
Adapted from UNDP in Turkey (2015).

Turkish Public Procurement Law states the information that explains which situations are included and which are not. According to the Public Procurement Law of Turkey, the following lists are involved:

- Public administrations, administrations with special budget, local governments and the related organizations of them,
- State economic organizations such as public companies and state economic firms,
- Social security institutions,
- Any foundations of which most of their resources belong to public administrations, administrations with special budgets like Presidency of High Agency of Atatürk Culture, Language and History and Turkey Sciences Academy, local governments and the related organizations, state economic organizations and social security institutions (Turkish Public Procurement Law, 2002).

According to the Turkish Public Procurement Law, the following list is excluded:

- Procurement of farming and/or livestock products by the establishments contained within this law is excluded.
- Procurements that are determined by the pertinent ministry and that are linked to national defense, counter-terrorism and intelligence are excluded.
- Procurement processes that are held with foreign sponsoring as a requirement of international treaties are excluded.

- Buying of items and services from punishment execution foundations and the foundations of jails workhouses that are related to Ministry of Justice is excluded.
- Buying of items and services required for research and development projects that are performed and maintained by national research and development establishments is excluded.
- Any procurement process such as restoration projects that is relevant to cultural heritage is excluded.
- Procurement processes that are related to emergency reaction plans are excluded.
- Procurement processes that are linked to renovation and/or redesigning of cultural belongings of foundations are excluded.
- Procurements of items and services that are required for implementing protection actions that are related to the witness protection program are excluded.
- Petroleum Pipeline Corporation (also referred to as “BOTAS” in Turkish language) is allowed to buy liquefied natural gas (LNG) through importing. This law is not binding for such purchases.
- Procurements of items and services through guaranteed agreements and contracts are excluded.
- The state economic companies are allowed to purchase fuel or other energy sources for the purpose of generating electricity without taking into consideration this regulation.
- General Directorate of Youth and Sports and independent sports federations are allowed to purchase items and services that are required for national and international sports incidents. These purchases are excluded.
- The General Executive of Turkish Coal Companies may buy items and services from coal fields in order to provide coal aid to poor families. Such purchases are excluded (Turkish Public Procurement Law, 2002).

1. Basic Principles

Like many other regulative rules, in the Turkish Public Procurement Law there are some basic principles that make sure that the procurement process is being done with fairness:

- The contracting establishments are responsible for ensuring clearness, competition, equal opportunity, trustworthiness, confidentiality, public control, and satisfaction of needs properly. They are also accountable for the efficient use of resources.
- The purchase of items and services cannot be combined in the same procurement process, if there is not a satisfactory expected relationship between them.
- Procurement processes cannot be divided into any size of lots in order to avoid threshold values.
- The principal procurement methods are open and restricted procedures for the procurements that are held in accordance with this law. The other procedures may be used under the special conditions explained in the Turkish Public Procurement Law.
- The procurement proceedings shall not be started if there is not a sufficient budget allocation.
- Some work projects may require environmental impact evaluation report because of their related legislation. A positive environmental impact evaluation report must be showed before the beginning of procurement process. However, the procurement process may be initiated due to natural disasters because of its urgency (Turkish Public Procurement Law, 2002).

2. Bidder Commission

The main responsibility for preceding the procurement process is the contracting officer (Turkish Public Procurement Law, 2002). His responsibilities start with assigning a bidder commission. The commission includes five members, at least. The number of members cannot be in even numbers. The commission consists of one chairperson, and four people of the relevant contracting establishment. At least two of the four members must be experts on the subject matter of the offer. At least one person must be liable for accounting and finance staff.

The commission may work, if it is provided with the minimum number qualified persons. In cases where the commission members do not have the necessary expertise or qualifications, the contracting officer may invite experts from other contracting establishments that are included under the law to confer with the commission.

The bidder commission has to decide by majority voting. If there is any absentee in the commission, the commission cannot take a decision. All members of the commission are accountable for their votes and decisions. If any member of the commission does not agree with the decisions that are taken, that member has to write down his own justifications. This point is important because in case of any indication of fraud in the procurement process, those justifications may help the prosecutors to reach to the right point. Therefore, these arguments have to be recorded and signed (Gokce, 2004).

The decisions have to be signed by all the members of the bidder commission showing the first and last names of the members.

3. Procurement Proceedings Records

A documentation of procurement process must be kept for all kinds of procurement. The required documentation consists of the certificate of authorization of the predicted cost that is acquired from the contracting officer, the bidder documents that are kept during the gatherings of the commission, the announcements and the notices to public, the bidders, and the application documents of bidders. In addition to these, the records contain all documents that are related to the procurement process such as minutes and decisions of the bidder commission (Turkish Public Procurement Law, 2002).

4. Threshold Values and Estimated Cost

Before the procurement proceedings of items, projects, or services, the contracting establishment must conduct all required price research and decides a predicted cost of the procurement. The predicted cost must exclude the value added tax. It has to be provided with its justifications clearly. Taking into consideration the estimated cost, some threshold values are regulated by the law. However, these values have not been updated for several years.

Predicted costs are not given in bidder or prequalification advertisements. It has to stay as a secret. It cannot be stated to anybody who does not have any official connection with the bidder process.

5. Rules on Qualification

The participating bidders in the procurement processes may be required to submit documents, such as bank statements or proof that the bidder is working as a recorded member of a connected chamber, for assessment of their qualifications. The bidders may also be asked to provide documents to show their legal eligibility to join the procurement process.

Some bidders may not be included in the procurement process for some reasons like the healthy continuity of the process or to be in accordance with the related regulations.

Bankruptcy and involvement in court proceedings are the reasons for being excluded from the procurement process. Basically, having a good financial and economical standing is very important to take part in the public procurement process in Turkey. If the bidder is from another country, then the contracting agency may ask to provide documents regarding the bidder's economic and financial standing as well as the debt and equity amount in the other country.

Any company who has not paid the taxes and/or required social security contributions in its own country may not be allowed to participate in the procurement process in Turkey.

Any bidder who has been awarded any contract in the last five years, and has been found to be involved in intentional misconduct (i.e., anything that is ethically inconsistent with the work that the bidder was contracted to do), may be excluded from the procurement process.

Any bidder who has submitted misleading information may be excluded from the procurement process. Submitting the required documents is also obligatory. Failure to do this may result in exclusion from the procurement process.

Turkish Public Procurement Law forbids some individuals and organizations to take part in any procurement process to prevent any wrongdoing. For instance, any company or individual who has been prohibited from participating in public

procurements, any company or individual who has declared bankruptcy in a fraudulent manner, any company or individual who has any position in the procurement process, or an official or close personal relationship with any of the people who have roles in the procurement process all are prohibited from participation in the procurement process.

6. Contract Types

Open procedure, restricted procedure negotiated procedure, and direct procedure are the possible types of procedures that can be applied in Turkish Procurement system. Following list gives a bit more detail regarding the procedures that are available in the Turkish Public Procurement Law.

- In open procedure any bidder is allowed to submit an offer to obtain the contract.
- In restricted procedure, the contracting agency conducts a prequalification examination of the bidders before submitting the bids. Any bidders who have passed the first step of the procedure are allowed to offer bids.
- Negotiated procedure can be chosen provided that no bids have been submitted either in open procedure or restricted procedure.
- Contracting agency may select to apply direct procedure so long as the need of contracting agency may be bought from only one company. In this procedure, contracting agency does not have to announce or advertise the procurement (Turkish Public Procurement Law, 2002).

7. Competition and Cost Analysis

On the one hand, competition is encouraged in the Turkish public procurement system. On the other hand, involving small businesses in government procurements is crucial for their existence. Therefore, the contracting authority may give priority to local bidders to allow them to prosper according to the related laws in the Turkish public procurement system (Turkish Public Procurement Law, 2002).

In the Turkish model, there is no specific cost analysis method for evaluating the bids. However, the bidder commission has the right to weigh the non-price factors. If there is not enough expertise among the members of the bidder commission, the chairman

of the bidder commission may invite expert reviewers to review the bids and bidders. Thus, the cost analysis of the bidders may be conducted according to the expert's recommendations.

8. Bid Evaluation and Awarding Contracts

The bid evaluation process in the Turkish Procurement System consists of two stages:

- At the first stage, the submitted documents are analyzed in terms of completeness. Necessary time to complete the deficient documents is given to the bidders. If the bidders complete all their paperwork in a given time period, they are allowed to join second stage evaluation.
- At the second stage, the bids are examined for their degree of conformity with the qualification criteria. For instance, the capacity of the bidders to fulfill the contract and the conditions that are determined in the bidder documents are assessed (Turkish Public Procurement Law, 2002).

After the second steps evaluation process, the contract must be awarded to the bidder who offered economically most advantageous bidder. However, the most advantageous bidder is not only decided by the price that the bidder has offered. The bidder commission is allowed to consider the non-price factors. Such factors might be maintenance cost, technical benefits, efficiency, and quality. Assigning monetary values of non-price factors to facilitate the understanding of the comparison of the price and the non-price factors must be conducted by the bidder commission. If the bidder commission awards the contract to any bidder who has not offered the economically most advantageous bidder, then the bidder commission must explain these factors to justify the decision.

After getting a justified decision, the bidder commission submits the decision to the contracting officer. The contracting officer has the right to either approve or cancel the bid. The contracting officer has to indicate the reasons for cancellation in case he cancels the bidder appeals.

G. AUSTRALIAN PUBLIC PROCUREMENT SYSTEM

Australian procurement system is regulated by The Commonwealth Procurement Rules (CPRs). These rules are the main regulators of the procurement system in Australia. These rules consist of the web-based guidance to facilitate government authorities to procure the things they need, and Resource Management Guides that informs the procurement stakeholders regarding the important changes in the procurement system.

According to the Commonwealth Procurement Rules, procurement is goods and services by a relevant government agency. Procurements that are conducted on behalf of another government agency are also contained in the procurement definition (Commonwealth Procurement Rules, 2014, p. 8). However, some fields are not deemed to be procurement in this system. For example, investments, loans, and procurements that are conducted for resale are excluded from the Australian public procurement system as procurement.

1. Prequalification Factors

In the Australian model, the government agency that needs procurement of goods and/or services is allowed to set conditions for participation in the procurement process to make sure that the bidders satisfy the minimum requirement of the procurement. For example, the contracting agency may want to check the financial and/or legal conditions of the bidders. Moreover, the contracting authority may ask the bidder to demonstrate its former relevant experience on similar works and services to make sure that the quality standard of the procurement is high.

2. Contract Types

Open bidder, prequalified bidder, and limited bidder are the possible procedures that can be used for procurement in Australian government procurement model.

- In open bidder, any company can submit an offer for the procurement.
- In prequalified bidder, contracting agency sends invitation to all potential bidders. Invited bidders are allowed to submit bids to be

awarded the contract. This process can be used to fasten the procurement process.

- Limited bidder method can be used if the procurement process does not meet the requirements for either open bidder or prequalified bidder. In this method, the relevant agency invites one or more bidders to make offers (Commonwealth Procurement Rules, 2014).

3. Value for Money

The main rule of Australian Procurement System is achieving value for money (Commonwealth Procurement Rules, 2014, p. 11). The first step of the process begins with interpreting and explaining the aims of the procurement clearly. Before the procurement process commences, officials should take into consideration some facts such as stakeholder inputs, the scale and scope of the business requirement, resource and budget, and the competitiveness of market. As mentioned in the Figure 4, value for money concept is applied by comparing the industry offerings and end user requirements.

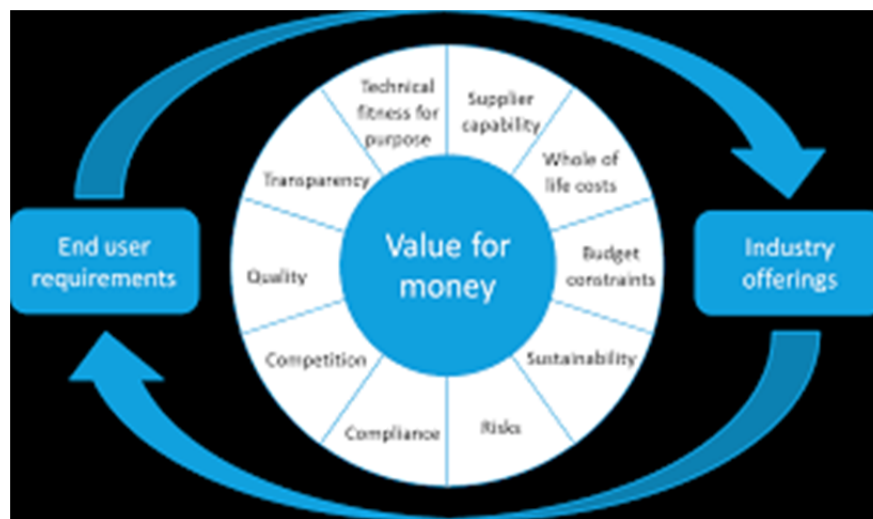


Figure 4. Factors to Be Considered in Procuring Value for Money Services.
Source: Deloitte Access Economics (2015).

According to the Commonwealth Procurement Rules, procurements should provide some requirements to ensure value for money is realized through the process:

- Procurements should encourage competition and discourage discrimination by using public resources economically viable and ethical way.
- Procurement must be justifiable to show that it is consistent with the general policies of Australian government.
- Procurement should be as open as possible to provide fair decision making.
- Procurement should be consistent with the scope of the pertinent government entity's necessity (Commonwealth Procurement Rules, 2014).

4. Competition

Realizing “value for money” guarantees the competition in Australian public procurement model. According to Australian Public Procurement Law, procurement should encourage competition and prevent any kind of discrimination (Commonwealth Procurement Rules, 2014, p. 16). Procurement should be transparent as much as possible.

Government entities support small and medium-sized businesses by giving them, to a certain extent, an advantage against the high-volume enterprises. As a general principle, the government agencies meet their ten percent of needs from the relatively small businesses (Commonwealth Procurement Rules, 2014, p. 16).

5. Cost Analysis

The quality of procured goods, adaptability of procured goods to possible future modifications, efficiency, and flexibility are amongst the factors that a contracting agency should take into account during the procurement process in Australian public procurement process. The agency should evaluate the financial and non-financial effects of the factors as a cost-benefit analysis.

6. Bid Evaluation and Awarding Contracts

In the Australian public procurement system, the basic evaluation method is the value for money concept. After getting the bids from the bidders, the contracting agency awards the contract to the bidder that offers the best value for money. On the other hand,

being legally eligible to participate in the procurement process and being capable of fulfilling the requirements of the contract are the prerequisites of receiving an award. “As a means to protect the public welfare, procurement agencies reserve the right to refuse a contract award to any company.

7. AusBidder

The long version of “AusBidder” is the Australian government’s procurement information system. AusBidder is a centralized web-based facility that is used for broadcasting information related to procurements (Commonwealth Procurement Rules, 2014, p. 19). It is also a secure way to communicate with the relevant companies. Other notifications, such as through printed media, must be commensurate with the information available via AusBidder.

H. U.S. ACQUISITION AND PROCUREMENT MODEL

The Federal Acquisition Regulations System is used by United States executive agencies for acquisition. The Federal Acquisition System seeks to realize four aims. First, it tries to fulfil the needs of the government agencies qualitatively. Second, it tries to diminish administrative operating costs as much as possible. Third, it aims to provide equal opportunity to every business in the procurement process to make sure the existence of competition. Last, but not least, it tries to guarantee that every procurement process is consistent with the general public policy objectives (Federal Acquisition Regulation-FAR-, Subpart 1.102).

Most of the federal establishments have to obey the Federal Acquisition Regulation as well as federal procurement statutes. A few federal agencies, like the U.S. Postal Service and the Federal Aviation Administration, are not bound to this regulation. However, those institutions have their own regulations regarding procurements.

1. U.S. Acquisition Process

The United States Department of Defense (DOD) has set up an acquisition process through various phases by issuing instructions through DOD directives “DOD instructions 5000 series.” These instructions spell out that defense acquisition should

undergo through following phases (DOD directives 5000.01 & DOD instructions 5000.02). The U.S. Defense Acquisition process is summarized in Figure 5.

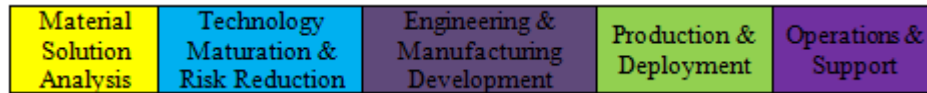


Figure 5. Five Phases of U.S. Defense Acquisition.
Adapted from “DOD 5000 Process Life Cycle.”

a. *Material Solution Analysis*

The basic aim of the Material Solution Analysis (MSA) phase is to provide the potential solutions for a given requirement and to develop an initial acquisition strategy. The MSA phase conducts Analysis of Alternatives (AoA) in order to estimate mission effectiveness, suitability and life cycle cost. The MSA phase also gauges the system supportability/affordability by harmonizing technology versus operations and sustainment.

b. *Technology Maturation and Risk Reduction*

The Technology Maturation and Risk Reduction (TMRR) defense acquisition phase is initiated to minimize the technology/engineering and life cycle cost risk and to establish suitable technologies to be incorporated to future systems that can ensure the requirements stated in Initial Capabilities Documents (ICD). The aim of this acquisition phase is to minimize the technology risk to a suitable level to make a decision to have contract for the Engineering and Manufacturing Development for successful implementation of program for further development, production and continuous sustainment.

c. *Engineering and Manufacturing Development*

The Engineering and Manufacturing Development (EMD) phase is considered to be the official start of an acquisition program. The purpose of the Engineering and Manufacturing Development phase is to develop/design a system capability before

initiating and entering into production. The aim of this phase is the completion of system capability, system integration, development of reasonable manufacturing/fabrication processes and testing and evaluation before entering the next phase.

d. Production and Development

The main purpose of the Production and Development (PD) phase is to accomplish the operation capability so as to satisfy the mission requirements. This phase consists of two sub-phases, as follows.

(1) Low-Rate Initial Production

The Low-Rate Initial Production (LRIP) phase is aimed at achieving the operational capability in order to satisfy/fulfil the mission requirements, to get production representative assets for initial operation test and evaluation (IOT&E)

(2) Full Rate Production and Development

After successful LRIP a full-scale Full Rate Production and Development production is initiated through contract for full rate production after stabilization of the production process.

e. Operations and Support

The aim of the Operations and Support (OS) phase is the implementation of a support program that fulfills the material readiness, operation requirements and further sustainment in an economical manner throughout its life cycle. The (OS) phase finishes with the ultimate disposal of the system.

2. U.S. Procurement/Contracting Process Phases

The different phases of procurement/contracting are as detailed in the following sections (Garrett, 2006, p. 23).

a. Procurement Planning

The Procurement method (Figure 6) involves what to procure and when to procure. It is a decision about outsourcing and method or type of procurement. It includes

what product or services are required and in how much quantity and that what should be the delivery schedule. The output of this phase is a procurement plan and Statement of Work (SOW).

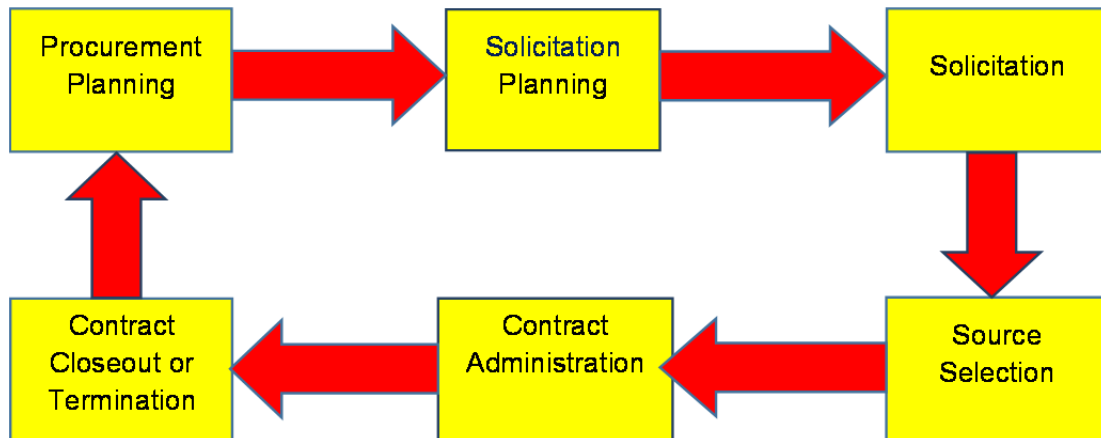


Figure 6. Six Stages of the U.S. Procurement Process.
Adapted from Rendon and Keith (2008).

b. Solicitation Planning

Solicitation Planning entails about documenting product requirements and identifying potential sources. The requirement must be related to mission needs and minimum operational performance. Wherever possible, performance objectives should be used instead of design requirements. It also identifies (minimum) threshold, and desired performance values and set program priorities. The output for this phase is procurement documents, evaluation criteria and SOW updates.

c. Solicitation

Solicitation involves acquiring quotations, bids, offers and proposals as consider suitable. There are two methods that potential contractor should submit their bids or proposals—Invitation for Bid (IFB) and—Request for Proposal (RFP). It also requires that “FedBizOps” should be used for formal and public advertisement and that advertisement should appear in advance of the solicitation. The output of this phase is the submission of bids or proposals.

d. Source Selection

The source selection phase involves choosing among the potential bidders or offerors. The final source selection authority rests with the Source Selection Authority (SSA). The evaluation factors for source selection are usually some combination of cost, schedule, technical and past performance depending on the requirements of each solicitation. The output of this phase is selection of a potential contractor.

e. Contract Administration

Contract Administration is about managing the relationship with the supplier. It involves managing any changes required in the contract, monitoring the contractor's performance and payment to the contractor. It also includes resolution of disputes and contract termination. The output of this phase is the documentation, contract modification, work completion and payments to contractor.

f. Contract Closeout

This process is about completion and settlement of the contract, including resolution of any outstanding issues. It ensures that both parties have fulfilled their obligations and documented the contract accordingly. It also deals with the release of contract retentions and final payment.

3. Available Procedures

There are three types of bidding procedures under the Federal Acquisition Regulation. These are sealed bidding, negotiated competitive proposals, and simplified acquisition procedure. The agencies generally conduct procurements using sealed bidding, negotiated competitive proposals and simplified acquisition methods for the procurement of goods/services having cost below U.S.\$ 150,000 (FAR Part 13).

Sealed bidding (FAR Part 14), negotiated competitive proposals (FAR Part 15), and simplified acquisition procedure (FAR Part 13) are the three possible procedures that can be used for procurements of U.S. government agencies.

- Sealed bidding can be used when the contract will be awarded according to the price. In this procedure, the representative of the

government authority and the bidders do not have to meet and discuss anything (FAR 6.402(a)).

- The main reason for using negotiated competitive proposals is the potential need for future modification to the procured goods and/or services.
- Furthermore, negotiated competitive proposals can be used as the government agency needs something that can only be procured from outside the U.S. (FAR 6.402(b)).
- The U.S. government agencies use simplified acquisition procedures for the procurements below 150,000 U.S. dollar (FAR Part 13).

4. Alternative Bids and Competition

In some cases, bidders are allowed to submit alternative bids. Even though the fact that bidders can have the option of submitting alternative bids, in most cases, bidders still have to submit bids that are completely appropriate to the needs of the solicitation. The U.S. procurement model uses both competitive and non-competitive methods of procurement, which are outlined in the following sections.

a. Competitive Methods

As per FAR 6.1, the contracting officers are required to strive for promoting and provision for full and open competition when soliciting for offers and then awarding the contracts so as to fulfill the government's requirements efficiently.

(1) Sealed Bidding

This method involves competitive bidding, public opening of bids, and awards. Bids are evaluated without discussions. It only considers price and price-related factors (FAR 6.4).

(2) Lowest Price Technically Accepted (LPTA)

In the Lowest Price Technically Accepted (LPTA) method the contract is awarded to the supplier having the lowest bid that meets all the technical criteria/requirements (FAR 105.101-2).

(3) Competitive Proposals

Involves negotiations and the contract is awarded on technical basis instead of lowest price as per the user requirement and is in the greatest advantage of the government (FAR 6.401(b)).

b. Non-competitive Methods

This is a method by which procurement is done through sole source.

(1) Sole Source

The only contractor that can provide the required product/service, but written justification and prior approval is mandatory (FAR 6.302-1).

(2) Situations other than the full/open competition (FAR 6.302)

- Proprietary (single source is available)
- International treaty between two countries
- Secret programs pertaining to National Security
- Authorized by constitution/statute
- When matter of R&D or to promote local industry
- War/Emergency/Urgency
- When in the best public interest

5. Best Value Continuum

In the U.S. public procurement model, the competitive process is to achieve, as far as is possible, the Best Value Continuum (FAR 15.101). The government authority is allowed to choose either one or the combination of the two source selection alternatives which are tradeoff process (FAR 15.101-1), and lowest price selection process (FAR 15.101-2). The contracting agency uses tradeoff process when the lowest price is not the main aim. The contracting agency uses lowest price process when the lowest price amongst the technically acceptable offers is the main priority.

Moreover, the Small Business Act is used for encouraging small businesses to take part in procurement process so that they get fair share of the whole pie.

6. Cost Analysis

In the U.S. model, the contracting agency is allowed to choose the process that is right for it. If the contracting agency selects the tradeoff process as the way of the procurement, then tradeoffs may occur between cost and non-cost factors. In such situations, the contracting agency is allowed to prefer any offer that is not cheapest so long as the non-cost factors are demonstrated to be more important than the cost factor. The contracting agency is the qualified authority to evaluate the significance of factors.

On the other hand, if the contracting agency chooses the lowest-price process, then the only cost analysis method that is needed by the contracting agency is to figure out the cheapest bid. The prerequisite is the acceptability of the bidders. To be clearer, the lowest offer is selected among the ones that are technically consistent with the requirements of the government agency.

7. Bid Evaluation and Awarding Contracts

Contract evaluation and award criteria can change from case to case. The mandatory considerations for all contracting agencies have to include the cost/price ratio of the bidder. However, there are still important differences of contract award criteria due to the different technical and other needs of varied government authorities.

The two basic bid evaluation criteria of procurements under the Federal Acquisition Regulation are (1) do not limit the competition in any way, and (2) prefer the bidder that best meets the government entity's requirements. The contracting agency takes into account the price and cost ratio, and the relevant previous experience of the bidders. The weights that the contracting agency gives to the factors change case by case. In some situations, technical needs become the first priority while in other situations former experience level becomes more significant. The main point is that no evaluation criteria can limit competition.

8. Contract Types

The U.S. procurement model uses mainly fixed price and cost type contracts throughout its various phases of acquisition process (World Class Contracting; chapter 8 by Gregory A. Garrett, 2010). The differences between the two types of contracts are described in the following sections.

a. Fixed Price Contracts

In the Fixed Price Contracts, the cost risk rests with the contractor. This type of contract is used when the risk of performance is low (e.g., when the requirements are well defined, technology is mature, processes are proven and the material is widely used). The contractor is bound to provide the product or service at the agreed fixed price in the contract. The contractor will receive the agreed amount as per the contract regardless of the actual cost incurred. The profit made by the supplier depends on the amount of cost incurred to the supplier/contractor in the provision of the product/service. This profit depends on two factors:

1. Cost savings become the contractor's profit
2. Cost overrun reduces profit or increases loss

The different types of Fixed Price contracts are Firm Fixed Price (FFP), Fixed Price with Economic Price Adjustment (FP-EPA) and Fixed Price Incentive (FPI).

b. Cost Contracts

In the Cost type contracts, the cost risk rests mainly with the government. This kind of contract is mostly used when the risk of performance is high (e.g., when the requirements are not well defined, technology is not mature, processes are not proven and the materials are untried). The government is liable to reimburse the supplier for all allowable and reasonable costs incurred, and to pay a fee in accordance with the contract terms. The supplier also agrees in the provision of "Best Effort," and could result in delivery of nothing and the contractor is held harmless. In this type of contract:

- Cost savings return to the government
- Cost overrun paid for by the government

The various types of Cost contracts are Cost Plus Fixed Fee (CPFF), Cost Plus Award Fee (CPAF) and Cost Plus Incentive Fee (CPIF). The Cost type contracts are most appropriate for Material Solution Analysis (MSA) and Technology Maturation & Risk Reduction (TMRR) phases whereas Fixed Price type of contracts are more appropriate for Engineering & Manufacturing Development (EMD), Production & Development (P&D) and Operation & Support (O&S) phases of the Acquisition process.

I. U.K. PROCUREMENT MODEL

There are mainly four different regulations regarding the acquisition system in the United Kingdom: The Public Contracts Regulations, the Utilities Contract Regulations, the Defense and Security Public Contracts Regulations, and National Health Service Regulations.

- The Public Contracts Regulations apply to public procurement by contracting establishments that are the subdivisions of the government.
- The Utilities Contract Regulations are related to procurement by utilities that are in transportation, energy and water sectors.
- The Defense and Security Public Contracts Regulations apply to approximately all procurement of military equipment, or militarily-sensitive equipment.
- The National Health Service Regulations are related to the compulsions of the National Health Service.

1. Principles of Procurement and Prequalification

Contracting authorities have to provide equal opportunity to the companies that participate in procurement process. The authorities have to behave transparently as much as possible. Moreover, competition has to be provided in every procurement. A contracting authority cannot air or share any information that has been forwarded to it by the bidders (Jones, 1997).

According to U.K. public procurement law, a bidder can be excluded from the procurement process if only the bidder prevents the competition in the procurement

process (The Public Contracts Regulations, 2015). However, the bidder should be given enough time and opportunity for defending himself.

2. Contract Types

In U.K. public procurement system there are five procedures that can be chosen as the way of procurement: open procurement (The Public Contracts Regulations 2015, Part 2, Chapter 2, Section 5.27), restricted procedure (The Public Contracts Regulations 2015, Part 2, Chapter 2, Section 5.28), competitive procedure (The Public Contracts Regulations 2015, Part 2, Chapter 2, Section 5.29), competitive dialogue (The Public Contracts Regulations 2015, Part 2, Chapter 2, Section 5.30), and innovation partnership (The Public Contracts Regulations 2015, Part 2, Chapter 2, Section 5.31). Each of these types having its own requirements to be selected as the way of procurement.

Any company is allowed to submit a bid in the open procedure. There is no restriction. In other procedures, only invited companies are allowed to submit bids.

3. Competition

In the U.K. public procurement model a minimum of three participants are recommended to submit bids to make ensure competition. The preliminary market research is incentivized by the law. As a result of the preliminary market consultation, the contracting agency may set some standards and/or requirements for the procurement. This consultation cannot be used for distorting the competition (The Public Contracts Regulations 2015, Part 2, Chapter 2, Section 5, Sub-Section 5).

4. Bid Evaluation and Awarding Contracts

The basic three criteria that U.K. contracting agencies use while evaluating the bidders are the professional former experience level of the bidder, financial situation of the bidder, and the technical skill of the bidder. Contracting authorities may consider the social, environmental, and other non-price factors of the bidders during the assessment process.

Additionally, The U.K. government contracting authorities are allowed to divide a procurement of any goods and/or services so long as the contracting authority justifies the requirement of such separation and may decide to award a contract in the form of separate lots. The authorities are allowed to decide what the scope of lots would be, too. Furthermore, if the economically most advantageous bidder does not fulfil the minimum requirements of related laws such as European and the national laws, then the contracting agency may choose not to award the contract to the bidder.

Contracting authorities may request the abilities of the operators in before awarding the contract. For instance, appropriate bank statements for financial ability may be requested.

Contracting authorities award the contract on the economically most advantageous bid (The Public Contracts Regulations, 2015, Part 2, Chapter 2, Section 5, Sub-Section 7.67). The evaluation of the bid is conducted by the contracting authority. However, contracting authorities should take into account the social, environmental, and innovative characteristics of the bidders.

In the U.K. public procurement system, the Cost Assurance and Analysis Services evaluates the costs of the bidders. They take into account the risk according to the bidder that the participating companies have offered.

J. SUMMARY

In this literature review chapter, the various bidding evaluation processes in the corporate sector were discussed. The need for procurement reforms in Pakistan and various important aspects of PPRA rules were discussed. Furthermore, the components for bid evaluation were described for analysis and incorporation in the PPRA rules. The acquisition and procurement models of Turkey, Australia, United States and United Kingdom were described in detail for further comparative analysis.

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III. METHODOLOGY

A. INTRODUCTION

This chapter describes the way this research project will be conducted. This study overviews the procurement models of corporate sector and the Pakistan procurement model in the form of Pakistan Procurement Regulatory Authority (PPRA) rules. It also discusses the various procurement process models of the United States, the United Kingdom, the Australian procurement procedure, and the Turkey acquisition model, with special emphasis on the bid evaluation procedure.

B. DATA SOURCES

The procurement done in the private /corporate sectors, the PPRA rules, the U.S., UK, Australia and Turkey procurement models are the main data sources used for this research project.

In order to have a good understanding of the supplier bid evaluation process, the various types of bidding processes and the supplier's bid evaluation criteria carried out in the private/corporate sectors are discussed with examples from Pacific Systems Corporation case for better understanding. Then, the Pakistan public procurement process and need for reforms in the government procedures are described along with the World Bank recommendations. A detailed overview of the Pakistan Procurement Regulatory Authority (PPRA) rules, with reference to the bid evaluation criteria, is given so as to know the deficiencies in the bid evaluation procedure. The various components relevant to the bid evaluation process are also defined to help in the comparative analysis of the different countries procurement models. Furthermore, the various pertinent procurement models like those of United States, United Kingdom, Australia, and Turkey are explained in detail in terms of their local laws pertaining to procurement, market research/pre-qualification of suppliers, price/cost analysis, types of contracts being used with special emphasis on the bid evaluation processes.

C. DATA ANALYSIS

The PPRA rule allows that the bid evaluation criteria should be defined by the user (i.e., the procuring agency before initiation of the bidding process). In order to fulfill the PPRA regulation, various government departments define the evaluation criteria of bids as per their own convenience and ease and that there is no standardization.

However, unlike the PPRA rules, the procurement process models of various other countries such as the United States, United Kingdom, Australia, and Turkey give detail evaluation criteria for the evaluation of bids. The above-mentioned procurement models are studied and explored for the purpose of comparative analysis in terms of the components for bid evaluation. It is the authors' intention to identify and recommend the best practices that are relevant, viable, and suited to the PPRA rules for incorporation in the Pakistan Procurement Regulatory Authority (PPRA) rules 2004 to bring efficiency/economy in Pakistan public acquisition and contracting.

D. SUMMARY

This chapter provided an overview of the methodology for the research project and described the main data sources for it. It also discussed that how the mentioned data will be analyzed for incorporation in the Pakistan procurement and acquisition. The Chapter IV of this research project describes the analysis of the contemporary models and gives findings and recommendations for inclusion in the public procurement system of Pakistan.

IV. ANALYSIS AND RECOMMENDATIONS

A. INTRODUCTION

This chapter gives an analysis by comparing the various procurement models of the United States, United Kingdom, Australia, and Turkey. After comparative analysis, the best practices followed in the above procurement models will be extracted and their inclusion in the PPRA rules as guiding principles for the public procurement in Pakistan will be recommended.

The comparative analysis of the United States, United Kingdom, Australia, and Turkey procurement models with respect to bid evaluation processes and recommendation of various components for the inclusion in the PPRA rules are given in the succeeding paragraphs.

B. COMPARATIVE ANALYSIS FOR BID EVALUATION CRITERIA

1. Market Intelligence

The market intelligence or market research rules of the Turkish model includes some general concepts such as having clean debt history, and free of tax and social security payments to the state. The bidders may be asked to submit bank statements regarding the financial condition of the bidder, documents that demonstrate the bidder is eligible legally to take part in the procurement process. Submitting any types of misleading documents causes the bidder to be excluded from the process. Additionally, individuals and the relatives of individuals with any role in the procurement process cannot take part in procurement process as a bidder.

In the Australian model, the government agency that needs procurement of goods and/or services is allowed to set conditions for participation in the procurement process to make sure that the bidders satisfy the minimum requirement of the procurement. For example, the contracting agency may want to check the financial and/or legal conditions of the bidders. Moreover, the contracting authority may ask the bidder to demonstrate its

former relevant experience on similar works and services to make sure that the quality standard of the procurement is high.

In the U.S. model, market research has been strictly required to have idea about the procurement. The FAR part 10 outlines how and under which circumstances market research is to be conducted. The Contract Price Reference Guide (CPRG) volume 1–5 also gives guidelines and procedure for the market research. The United States procurement model consider market intelligence to be an important part of the acquisition/procurement process as it helps the government that commercial or non-development products are available to fulfil the government requirements or modification of specification/description is required to fulfil the procuring agency needs.

According to U.K. public procurement law, the only reason for being excluded is to prevent the competition in the procurement process (The Public Contracts Regulations 2015, Part 2, Chapter 2, Section 5, Sub-Section 5). However, the bidder should be given enough time and opportunity to defend themselves.

2. Evaluation Criteria

The bid evaluation process in the Turkish Procurement System consists of two stages: at the first stage, the submitted documents are analyzed in terms of completeness. Necessary time to complete the deficient documents is given to the bidders. If the bidders complete all their paperwork in a given time period, they are allowed to join second stage evaluation. At the second stage, the bids are examined for their degree of conformity with the qualification criteria. For instance, the capacity of the bidders to fulfill the contract and the conditions that are determined in the bidder documents are assessed.

After the second stage evaluation process, the contract must be awarded to the bidder who offered the most economically advantageous bid. However, the most advantageous bidder is not only decided by the price that the bidder has offered. The bidder commission is allowed to consider the non-price factors. Such factors might be maintenance cost, technical benefits, efficiency, and quality. Assigning monetary values of non-price factors to facilitate the understanding of the comparison of the price and the non-price factors must be conducted by the bidder commission.

In the Australian model, the basic evaluation method is the value for money concept. After getting the bids from the bidders, the contracting agency awards the contract to the bidder that deemed to offer the best value for the money. On the other hand, being legally eligible to participate in the procurement process and being capable of fulfilling the requirements of the contract are the prerequisites of receiving an award. Furthermore, the government agencies reserve the right to refuse to award the contract to any entity in case this is good for the public. In such situation, the reasons have to be recorded.

In U.S. public procurement system, the two basic bid evaluation criteria of procurements under the Federal Acquisition Regulation are: do not limit the competition in anyway, and prefer to the bidder that is related to the government entity's requirements. The contracting agency takes into account the price and cost ratio, and the relevant previous experience of the bidders. The weights that the contracting agency gives to the factors change case by case. In some situations, technical needs become the first priority while in other situations former experience level becomes more significant. The United States uses best value continuum as the evaluation criteria in their acquisition and procurement process. In the best value continuum at one end of the continuum is the "Lowest Price Technically Acceptable" (LPTA), while on the other end is the "High Price Technically Superior." The tradeoff process is used during the source selection process across the whole best value continuum to tradeoffs between price and non-price factors that provide the opportunity to the government to accept other than the lowest price or other than the highest price technically superior. The tradeoff process is suitable when the contract is awarded on technical basis instead of lowest price as per the user requirement and is in the greatest advantage of the government. However, care should be taken in such award of contracts, that is, it should be clear and transparent because such awards of contract are very much vulnerable to protests by the supplier.

The basic three criteria that U.K. contracting agencies use while evaluating the bidders are the professional former experience level of the bidder, financial situation of the bidder, and the technical skill of the bidder. Contracting authorities may consider the

social, environmental, and other non-price factors of the bidders during the assessment process.

3. Price/Cost Analysis

In the Turkish model, there is no specific cost analysis method for evaluating the bids. However, the bidder commission has the right to weigh the non-price factors. In cases when there is not enough expertise among members of the bidder commission, the chairmen of the bidder commission may invite experts to advise the commission. Thus, the cost analysis of the bidders may be conducted according to the experts' recommendations.

The quality of procured goods, adaptability of procured goods to possible future modifications, efficiency, and flexibility are amongst the factors that a contracting agency should take into account during the procurement process in Australian public procurement process. The agency should evaluate the financial and non-financial effects of the factors as a cost-benefit analysis.

In the U.S. model, the contracting agency is allowed to choose the process that is right for it. If the contracting agency selects the tradeoff process as the way of the procurement, then there may occur tradeoffs between cost and non-cost factors. In such situations, the contracting agency is allowed to prefer any offer that is not the cheapest so long as the non-cost factors are demonstrated to be more important than the cost factor. The contracting agency is the qualified authority to evaluate the significance of factors. On the other hand, if the contracting agency chooses the lowest price process, then the only cost analysis method that is needed by the contracting agency is to figure out the cheapest bidder. The prerequisite is the acceptability of the bidders. To be more clear, the lowest offer is selected among the ones that are technically consistent with the requirements of the government agency.

The Cost Assurance and Analysis Services evaluate the costs. They take into account the risk according to the bidder that the participating companies have offered.

4. Contract Types

Open procedure, restricted procedure negotiated procedure, and direct procedure are the possible types of procedures that can be applied in Turkish Procurement system. In open procedure, any bidder is allowed to submit an offer to obtain the contract. In restricted procedure, the contracting agency conducts a prequalification examination of the bidders before submitting the bids. Any bidders who have passed the first step of the procedure are allowed to offer bids. Negotiated procedure can be chosen provided that no bids have been submitted either in open procedure or restricted procedure. Contracting agency may select to apply direct procedure as long as the need of contracting agency may be bought from only one company. In this procedure, contracting agency does not have to announce or advertise the procurement.

Open bidder, prequalified bidder, and limited bidder are the possible procedures that can be used for procurement in Australian model. In open bidder, any company can submit an offer for the procurement. In prequalified bidder, contracting agency sends invitation to all potential bidders. Invited bidders are allowed to submit bids to be awarded the contract. This process can be used to fasten the procurement process. Limited bidder method can be used if the procurement process does not meet the requirements for either open bidder or prequalified bidder. In this method, the relevant agency invites one or more bidders to make offers.

Sealed bidding, negotiated competitive proposals, and simplified acquisition procedure are the three possible procedures that can be used for procurements of U.S. government agencies. Sealed bidding can be used when the contract will be awarded according to the price. In this procedure, the representative of the government authority and the bidders do not have to meet and discuss anything. The main reason for using negotiated competitive proposals is the potential need for future modification to the procured goods and/or services. Furthermore, negotiated competitive proposals can be used as the government agency needs something that can only be procured from outside the U.S. The U.S. government agencies use simplified acquisition procedures for the procurements below 150,000 U.S. dollar.

In the U.K. public procurement system are five procedures that can be chosen as the way of procurement: open procurement, restricted procedure, competitive procedure, competitive dialogue, and innovation partnership. Any company is allowed to submit a bid in open procedure. There is no restriction. In other procedures, only the invited companies are allowed to submit bidders.

5. Competition

Contracting authority may give priority to local bidders to prosper them according to the related laws in Turkish public procurement system. This rule can only be used to support the local companies. There is no any other rule that can prevent the pure competition among the bidders. Competition is encouraged.

The concept that ensures the competition in Australian public procurement model is “values for money.” Realizing this is imperative. According to Australian Public Procurement Law, procurement should encourage competition and prevent any sort of discrimination. Procurement should be transparent as much as possible. However, supporting small and medium size businesses is a way that the government entities use by giving them, to a certain extent, advantage against the high volume enterprises. As a general principle, the government agencies meet their ten percent of needs from the relatively small businesses.

In the U.S. public procurement model the FAR part 6 describes the scope and applicability for the open and full competition and FAR subpart 6.5 particularly advocates for enhancing the competition and prefer to have open competition to obtain the best value of the tax payer money. Moreover, the concept that is applied to have competitive process as much as possible is Best Value Continuum. The government authority is allowed to choose either one or the combination of the two source selection alternatives, which are the tradeoff process, and the lowest price selection process. The contracting agency uses tradeoff process when the lowest price is not the main aim. The contracting agency uses lowest price process when the lowest price amongst the technically acceptable offers is the main priority. Moreover, the Small Business Act is

used for encouraging small businesses to take part in procurement process so that they get fair share of the whole pie.

In U.K. public procurement model three participants, at least, are recommended to submit bidders to make sure the existence of competition. The preliminary market research is incentivized by the law. As a result of the preliminary market consultation, the contracting agency may set some standards and/or requirements for the procurement. This consultation cannot be used for distorting the competition (The Public Contracts Regulations 2015, Part 2, Chapter 2, Section 5, Sub-Section 5).

The comparative analysis of the various procurement models discussed above is given in Table 6.

Table 6. Comparative Analysis of the Procurement Models

Analysis Topics	Turkish Model	Australian Model	U.S. Model	U.K. Model
Market Intelligence	<ul style="list-style-type: none"> • Clean debt history • Free of tax and other payments to the state • Relatives of the procurement staff cannot participate 	<ul style="list-style-type: none"> • Contracting agency set rules • Financial, legal, or former experiences can be asked 	<ul style="list-style-type: none"> • Strictly required • FAR Part 10 • The Contract Price Reference Guide (CPRG) volume 1–5 	<ul style="list-style-type: none"> • No strict rules • Getting information before setting the requirements is required
Competition	<ul style="list-style-type: none"> • Small/local businesses may be prioritized 	<ul style="list-style-type: none"> • At least 3 participants needed • Small/local businesses may be prioritized 	<ul style="list-style-type: none"> • Open/ limitless competition 	<ul style="list-style-type: none"> • At least 3 participants needed
Suitable Contract	<ul style="list-style-type: none"> • Open procedure: unlimited participant • Restricted procedure: Invited bidders • Negotiated procedure: One or more invited bidders 	<ul style="list-style-type: none"> • Open procedure: unlimited participant • Prequalified procedure: Invited bidders • Limited procedure: One or more invited bidders 	<ul style="list-style-type: none"> • Sealed bidding procedure: price is the priority • Simplified acquisition procedure: the procurements below \$150,000. • Negotiated competitive procedure: potential need 	<ul style="list-style-type: none"> • Open procedure: unlimited participant • Restricted procedure: Invited bidders • Competitive procedure: Invited bidders • Competitive dialogue: Invited bidders • Innovation

Analysis Topics	Turkish Model	Australian Model	U.S. Model	U.K. Model
			for future modification	partnership: Invited bidders
Evaluation Criteria	<ul style="list-style-type: none"> • Assessment of price and non-price factors • Economically most advantageous bidder 	<ul style="list-style-type: none"> • Value for money • the best offer can be rejected only for public benefits 	<ul style="list-style-type: none"> • Best value continuum • Limitless competition • Entity's requirements • Cost/price ratio • Relevant previous experiences 	<ul style="list-style-type: none"> • Professional former experience level of the bidder • Financial situation of the bidder • Technical skills of the bidder • Social, environmental and other non-price factors
Cost/ Price Analysis	<ul style="list-style-type: none"> • No specific cost/price analysis method • Bidder commission is allowed to weigh the non-price factors 	<ul style="list-style-type: none"> • The quality, and the adaptability of procured goods are evaluated. • Procurement agency evaluates price/non-price factors. 	<ul style="list-style-type: none"> • Contracting agency selects the best way to procure, and then appropriate cost/price analysis method is applied 	<ul style="list-style-type: none"> • The Cost Assurance and Analysis Service evaluate the costs

C. RECOMMENDATIONS/FINDINGS ON CONDUCTING COMPARATIVE ANALYSIS

The comparative analysis of various procurement models of Turkey, Australia, United States and United Kingdom carried out. This research project has recommended five components for bid evaluation as already discussed in Chapter II; these are market intelligence, competition, evaluation criteria, suitable contract and cost/price analysis that is to be incorporated in the Pakistan Procurement Regulatory Authority (PPRA) rules. These recommendations taking into the account the five components of bid evaluation are:

1. Market Intelligence

Market intelligence is considered being an important part of the procurement process as it helps the procuring agency that products or services available in the market as per the specification of the requirement or to make some changes in the specifications to satisfy the need or requirement.

The United States FAR and CPRG provides detail guidelines and procedures for the market intelligence. The manner in which the market intelligence is carried out in the United States procurement model be followed and is recommended for incorporation in the PPRA rules.

2. Competition

Competition is paramount for any business particularly for public procurement because through competition the best value for the public money can be obtained. The United Kingdom and Australian procurement models, that advocates the participation of at least three bidders to ensure competition so as to have good value for the public money and to fulfill the user requirements. So the competition procedures of the Australian and United Kingdom are recommended to be incorporated in the PPRA rules.

3. Suitable Contract

The PPRA rules only advocate for the fixed price types of contracts; however, in the United States and United Kingdom procurements models there is flexibility and depending on the risk involved the procuring agency can switch between fixed and cost type contracts that is most suited to the government or user requirements. The same is recommended for PPRA rules incorporation in order to have options for the user agency to select the most suitable and appropriate contract that is advantageous and less risky to the user or procuring agency.

4. Evaluation Criteria

The PPRA rules follow the evaluation of bids on the price analysis that is the LPTA. However, the U.S. model uses the best value continuum as the evaluation criteria

for their bids. The tradeoff is used between the price and non-price factors and gives the opportunity to procuring agency to either go for LPTA or high price technically superior bids.

The Turkish procurement models also advocates for considering the non-price factors along with the price factors for evaluation of the bids. Both the U.S. and Turkish procurement models' evaluation criteria are recommended for inclusion in the PPRA rules.

5. Cost/Price Analysis

The cost/price analysis helps in the preliminary evaluation of the bids or suppliers thus short listing the potential suppliers/bidders and making the decision easy for further evaluation by the procuring agency. The various cost/price analysis done in the corporate sector like the Total Cost of Ownership or Weighted Scoring that provides for an appropriate cost/price analysis is recommended to be incorporated in the PPRA rules.

D. SUMMARY

In this chapter the comparative analysis of various procurement models of Turkey, Australia, United States and United Kingdom with respect to the proposed components for bid evaluation were carried out. Recommendations based on the comparative analysis for inclusion in the PPRA rules were discussed. This research project recommended five components for bid evaluation to be incorporated in the PPRA rules for public procurement in Pakistan.

V. CONCLUSION

A. SUMMARY

The defense of every country spends a huge amount of public money; however, through effective and efficient procurement procedures/techniques greater value for public money can be obtained (i.e., less public money is spent on defense). Pakistan has always strived to improve and refine its procurement procedures using PPRA rules as a standard tool. This research project concentrated on the analysis of bid evaluation procedures pertaining to public procurement. The Chapter I of this research provides a short introduction giving an overview on the background, purpose, importance of this research project. It also describes briefly the deficiencies in the PPRA rules, benefits/limitations and organization of report. Chapter II pertains to the literature review of the research and contains the various bidding processes and bids evaluation criteria in the corporate /private sectors. It also explains the need and importance of the procurement reforms and PPRA rules. It describes briefly the important PPRA rules pertaining to pre-qualification of suppliers, bidding processes and bid evaluation criteria. The contemporary procurement models like United States, United Kingdom, Australia and Turkey are also described in detail with the main focus on the bids evaluation procedures/processes.

Chapter III of this research project discusses the methodology that how this research project will be conducted and gives an overview of the data sources and data analysis. Chapter VI describes the various contemporary procurement models focusing on the analysis of bid evaluation procedures. Recommendations are given for the incorporation in the PPRA rules after the comparative analysis of the various procurement models.

Chapter V gives a brief overview of the preceding chapters and provides answers for the research questions. It also gives recommendations by identifying areas for further research to be incorporated in the public procurement of Pakistan.

B. CONCLUSION

This research project mainly concentrated on the comparative analysis of various procurement models pertaining to bid evaluation procedures to address the following research questions.

1. Research Questions

The aim of this research project was to compare and analyze the bid evaluation processes/procedures of the United States, United Kingdom, Australia and Turkey and provide policy guideline for incorporation in the PPRA rules 2004. The following questions were answered as a result of this research project:

- What policy guidelines should be incorporated in PPRA rules 2004 bid evaluation procedures for defense procurement in Pakistan?
- What are the best practices in U.S., UK, Australia or UN and Turkey procurement models that will be viable for PPRA rules and Pakistan public procurement?

This research project mainly emphasized on the bid evaluation procedure in the PPRA rules to understand the deficiencies or procedural lapses and devise suitable recommendations. In this regard, the four contemporary models of procurement, the United States model, United Kingdom model, Australian model and Turkish model were analyzed with focus on bid evaluation processes.

The comparative analysis of the four procurement models was carried out and base on these a five components pertaining to bid evaluation processes are recommended:

a. Market Intelligence

- a.*** The market intelligence to be included for public procurement in PPRA rules.
- b.*** The market intelligence conducted in U.S. procurement model to be used.

b. Competition

- a.*** The competition criteria should be incorporated in the bidding evaluation of PPRA rules.
- b.*** The Australian and UK procurement model for increased and effective competition can be implemented.

c. Suitable Contract

- a.*** For high risk performance, cost reimbursement contracts type should be incorporated in PPRA rules.
- b.*** The different types of contract in U.S. and UK procurement model may be selected for incorporation in PPRA rules.

d. Evaluation Criteria

- a.*** The PPRA rules should incorporate in the evaluation criteria the “best value” (i.e., the tradeoff between price and performance that is beneficial for the procuring agency).
- b.*** The “best value continuum” in the U.S. procurement model and consideration of non-price factors in Turkish model along with price factors can be incorporated in PPRA rules.

e. Cost/price Analysis

- a.*** The total cost of ownership/weighted score technique should be incorporated as a cost/price analysis in the PPRA rules
- b.*** The supplier bidding evaluation criteria in the corporate/private sector can be used.

This research project therefore recommends that PPRA rules should incorporate these components pertaining to bid evaluation (as an outcome of the comparative analysis of the various procurement models) for cost effective and efficient public procurement in Pakistan. Table 7 summarizes the recommended components of bid evaluation process.

Table 7. Summary of Recommended Components of Bid Evaluation

<i>Components of Bid Evaluation</i>	<i>Recommended Model of Procurement</i>
Market Intelligence	United States Procurement Model
Competition	Australia and United Kingdom Procurement Model
Suitable Contract	United States and United Kingdom Procurement Model
Evaluation Criteria	United States and Turkish Procurement Models
Cost/price analysis	Corporate/Private Sector Procurement Procedures

2. Areas for Further Research

There is always a room for improvement and wise people says that even the best can be improved, so keeping in mind the above two areas are being identified and recommended for further research.

a. Blacklisting or Debarment of Suppliers/Contractors

The PPRA rule 19 tells about the blacklisting of suppliers/contractors but does not provide details under what conditions and circumstances a supplier or contractor to be black listed or debarred from carrying out business with the government. This rule has left it to the discretion of the procurement agency to identify and devise a procedure to black list a supplier or a contractor. Unlike the PPRA rules, the Federal Acquisition Regulation (FAR) of the United States under FAR section 9.4 gives a detail overview of black listing/debarment of suppliers/contractors like the factors that leads to blacklisting, the causes of debarment, the period of debarment, the procedure for debarment and how the list of blacklisted/debarred contractors to be maintained. These need to be studied/researched and incorporated in the PPRA rules.

b. Limitation on Negotiations

The PPRA rule 40 put a ban on the negotiations with the lowest bidder. The ban has led to increase in the prices as far as bids are concerned. A research in this regard is required and this rule needs to be revised as both the United States and United Kingdom

models of procurement allows for negotiation with suppliers/contractors both before and during the bid evaluation process and even with the lowest evaluated bidder in order to reduce the risk and for resolving any issues before awarding the contract.

c. Training of Procurement Personnel

The education and training of the procurement personnel is of paramount importance for any organization. There is a need for research in this regard so that it may be included in PPRA rules and that on-the-job training and education to be made mandatory for the personnel involved in the public procurement. The United States Department of Defense (DOD) has passed the Defense Acquisition Workforce Improvement Act (DAWIA), which specifies the training, education and experience requirements for the personnel involved in the defense procurement. Moreover, the training portion is implemented through the Defense Acquisition University (DAU). Guidelines from DAWIA and DAU can be taken and further researched for incorporation into the PPRA rules for bringing overall cost effectiveness and expertise in the public procurement of Pakistan.

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